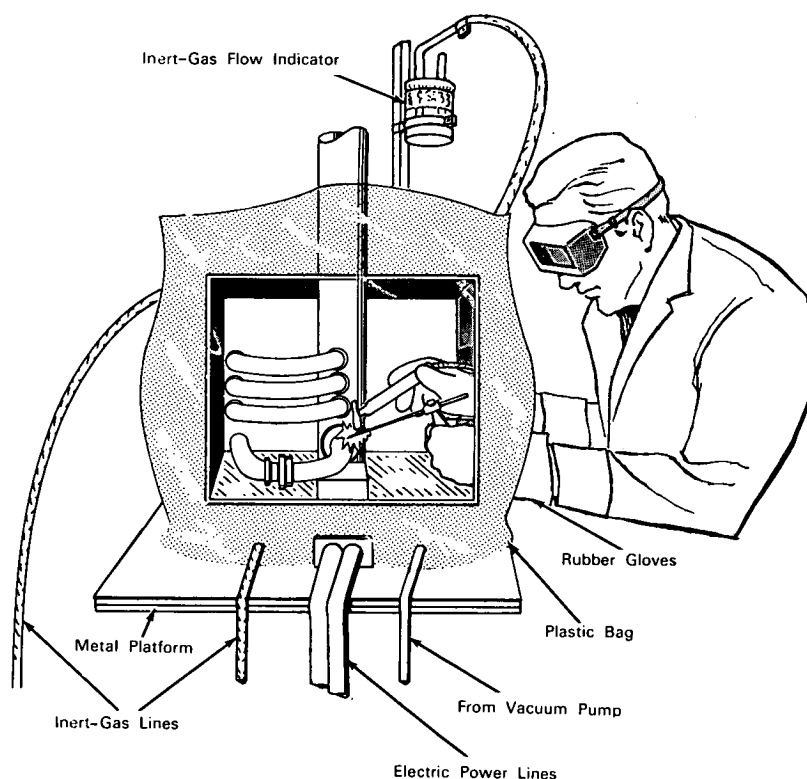


NASA TECH BRIEF



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Inert-Gas Welding and Brazing Enclosure Fabricated From Sheet Plastic



The problem: Available chambers in which a protective inert-gas atmosphere is maintained for welding and brazing of certain metals are relatively expensive and do not accommodate large workpieces, particularly when they are part of fixed equipment such as pipelines and manifolds.

The solution: A plastic bag that can be inexpensively custom-fabricated around part of the workpieces and the welding or brazing tools. An inert-gas

atmosphere is maintained within this bag during the welding or brazing operation.

How it's done: Sheets of clear polyethylene plastic are fitted around the equipment to be welded and the welding tool. The plastic sheets are then taped at the seams to form a bag. In laying out the plastic material, provision is made for the incorporation of windows (of polymethyl methacrylate), and appropriate fittings for the entrance and exit of inert gas and vacuum and powerlines. Rubber gloves extending into the

(continued overleaf)

enclosure are sealed into one or more faces of the plastic bag. The operator manipulates the welding tool with his hands in these gloves. An indicator consisting of a metal specimen which undergoes a color change when test-welded in the presence of inert-gas contaminants (water and oxygen) is also placed inside the bag. The inert-gas atmosphere may also be maintained in a space surrounding the exterior of the bag.

Notes:

1. Other operations such as metal brazing and fusion plating which require an inert-gas atmosphere can also be performed in custom-fabricated plastic bags.
2. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Lewis Research Center
21000 Brookpark Road
Cleveland, Ohio, 44135
Reference: B65-10338

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated by NASA.

Source: John P. Wisner
(Lewis-220)